

AMENDMENTS TO CLAIMS

1. (Currently Amended) An apparatus for replicating a secondary volume of a mirrored volume pair, the apparatus comprising:

a mirror module configured to suspend mirroring operations between a primary volume and a secondary volume, each volume comprising a suspend-time volume identifier within a volume identifier field;

a volume identification module configured to copy the suspend-time secondary volume identifier for the secondary volume to a hidden field on the secondary volume and associate the secondary volume with a selected volume identifier;

a data replication module configured to copy a volume to a backup volume;
and

the volume identification module further configured to associate the suspend-time secondary volume identifier with a backup volume.

2. (Cancelled).

3. (Currently Amended) The apparatus of claim 12, wherein the volume identification module is configured to copy the hidden field to the backup volume identifier field.

4. (Currently Amended) The apparatus of claim 12, wherein the data replication module is further configured to bring the secondary volume online.

5. (Original) The apparatus of claim 1, wherein the mirror module is further configured to reestablish mirroring operations between the primary volume and the secondary volume.

6. (Original) The apparatus of claim 1, wherein the mirror module is further configured to resynchronize the secondary volume with the primary volume.

7. (Original) The apparatus of claim 1, wherein the selected volume identifier is a unique volume identifier.

8. (Currently Amended) A system for replicating a secondary volume of a mirrored volume pair, the system comprising:

- a host configured to read and write data;

- a primary storage system in communication with the host, the primary storage system having a primary volume;

- a secondary storage system configured to mirror data on the primary storage system using a secondary volume, the secondary volume having a suspend-time volume identifier within a volume identifier field;

- a backup system configured to replicate an online volume to a backup volume;

- a secondary volume replication module configured to suspend a mirroring operation, save the suspend-time secondary volume identifier for the secondary volume to a hidden field on the secondary volume, associate the secondary volume with a selected identifier, copy the secondary volume to the backup volume, and associate the suspend-time secondary volume identifier with the backup volume.

9. (Cancelled).

10. (Currently Amended) The system of claim 89, wherein the secondary volume replication module is further configured to copy the hidden field to the backup volume identifier field.

11. (Original) The system of claim 8, wherein the secondary volume replication module is further configured to bring the secondary volume online.

12. (Original) The system of claim 8, wherein the secondary volume replication module is further configured to reestablish mirroring operations between the primary volume and the secondary volume.

13. (Original) The system of claim 8, wherein the secondary volume replication module is further configured to resynchronize the secondary volume with the primary volume.

14. (Currently Amended) A computer readable storage medium comprising computer readable code configured to carry out a method for replicating a secondary volume of a mirrored volume pair, the method comprising:

suspending mirroring operations between a primary volume and a secondary volume, each volume comprising a suspend-time volume identifier within a volume identifier field;

copying the suspend-time secondary volume identifier for the secondary volume to a hidden field on the secondary volume;

associating the secondary volume with a selected volume identifier;

replicating the secondary volume to a backup volume; and

associating the suspend-time secondary volume identifier with the backup volume.

15. (Cancelled).

16. (Currently Amended) The computer readable storage medium of claim ~~14~~15, wherein associating the suspend-time secondary volume identifier with the backup volume comprises copying the hidden field contents to a backup volume identifier field.

17. (Previously Presented) The computer readable storage medium of claim 14, further comprising bringing the secondary volume online.

18. (Original) The computer readable storage medium of claim 14, further comprising reestablishing mirroring operations between the primary volume and the secondary volume.

19. (Original) The computer readable storage medium of claim 18, wherein reestablishing mirroring operations further comprises resynchronizing the secondary volume with the primary volume.

20. (Original) The computer readable storage medium of claim 18, wherein the operations of suspending mirroring operations, associating the secondary volume with a selected identifier, bringing the secondary volume online, replicating the secondary volume to a backup volume, associating the suspend-time secondary volume identifier with the backup volume, and reestablishing mirroring operations between the primary volume and the secondary volume are performed as an automated sequence responsive to a single input stimuli.

21. (Original) The computer readable storage medium of claim 14, wherein associating the secondary volume with a selected volume identifier comprises overwriting the secondary volume identifier field with the selected volume identifier.

22. (Currently Amended) A method for replicating a secondary volume of a mirrored volume pair, the method comprising:

suspending mirroring operations between a primary volume and a secondary volume, each volume comprising a suspend-time volume identifier within a volume identifier field;

copying the suspend-time secondary volume identifier for the secondary volume to a hidden field on the secondary volume;

associating the secondary volume with a selected volume identifier;

replicating the secondary volume to a backup volume; and

associating the suspend-time secondary volume identifier with the backup volume.

23. (Cancelled).

24. (Currently Amended) The method of claim ~~22~~23, wherein associating the suspend-time secondary volume identifier with the backup volume comprises copying the hidden field contents to the backup volume identifier field.

25. (Original) The method of claim 22, further comprising bringing the secondary volume online.

26. (Original) The method of claim 22, further comprising reestablishing mirroring operations between the primary volume and the secondary volume.

27. (Original) The method of claim 26, wherein reestablishing mirroring operations further comprises resynchronizing the secondary volume with the primary volume.

28. (Original) The method of claim 26, wherein the operations of suspending mirroring operations, associating the secondary volume with a selected identifier, bringing the secondary volume online, replicating the secondary volume to a backup volume, associating the suspend-time secondary volume identifier to the backup volume, and reestablishing mirroring operations between the primary volume and the secondary volume are performed as an automated sequence responsive to a single input stimuli.

29. (Original) The method of claim 22, wherein the selected volume identifier is a unique volume identifier.

30. (Currently Amended) An apparatus for replicating a secondary volume of a mirrored volume pair, the apparatus comprising:

means for suspending mirroring operations between a primary volume and a secondary volume, each volume comprising a suspend-time volume identifier within a volume identifier field;

means for copying the suspend-time secondary volume identifier for the secondary volume to a hidden field on the secondary volume;

means for associating the secondary volume with a selected volume identifier;

means for replicating the secondary volume to a backup volume; and

means for associating the suspend-time secondary volume identifier with the backup volume.